Massachusetts Maritime Academy Sustainability Plan

Date: October 1,2004
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This Sustainability Plan has been reviewed and approved by Michael Joyce V.P. Admin. & Finance) of
(*Massachusetts Maritime Academy* on *10/1/04 .*

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Signature of Agency Head or other Appropriate Designee

1. Agency Information, Impact Identification and Sustainability Team

1.1 Agency Description and Scope

Mass Maritime Academy is one of the nine state colleges and was recently designated a special mission college. The Academy grants degrees in Marine Engineering and Marine Transportation, Marine Safety and Environmental Protection and Facilities and Plant Engineering. In addition, MMA conducts certificate programs and continuing education programs for industry professionals. The campus runs at operational capacity for ten out of the twelve months. There is a reduction in operations during the months of January and February when most of the student body embarks on the training ship for the winter sea term abroad.

The Academy is located in the town of Bourne bounded on three sides by the Cape Cod Canal , Buzzards Bay and Buttermilk Bay. The main campus is on approximately 52 acres with 22 buildings of various sizes and functions. The present square footage on the main campus is 493,786 sq ft. The Bournedale campus, which is used by the varsity crew and sailing teams as their training center is located on Herring pond [8.7acres] with two buildings[3600 sq ft.] In addition there is a storage area located at Otis Air Base with four buildings for boat storage [10,000 sq ft.]

There 925 full time students. 871 of these reside in the six dormitories on campus. This does not include those continuing education students and those enrolled in certificate programs.

The campus staff is composed of 185 faculty and staff.

1.2 Agency Impacts On the Environment and Human Health

The Academy operates various classrooms, engineering labs, dormitories, power plant, wastewater treatment plant, dining hall, gym [pool] athletic fields and various support buildings. Of special note we have a 540 foot training vessel that requires campus support when tied up in it's berth. All these have a direct environmental impact on our operational activities.

Buildings:	chemicals storage- cleaning agents water and energy usage/conservation
Offices	paper use, disposal, recycling end use of office equipment for disposal/recycling
Dormitories	energy & water conservation Waste disposal, recycling end use of equipment for disposal/recycling

Academy usage:

	f/y 2003	f/y2004
electricity	3,908,732 kwhrs	5,308,680 kwhrs
water	9,002,000 gallons	10,938,000 gallons
nat.gas	12,455 mcf	18,994 mcf
oil#4	3,137 barrels	3,280 barrels

1.3 Agency Operational Costs

	f/y 2003	f/y/2004
Electricity	$360,624	$551,380
Water	$ 33,352	$ 40,914
#4 Oil	$108,645	$122,675
Nat. gas	$ 77,155	$161,675
Hazardous & universal waste disposal		$ 9500
Solid waste		$31,852

Utility consumption dollars increased for F/Y 04 over F/Y 03 for a variety of reasons. Please refer to long term goals.

1.4 Agency Sustainability Team Members

Michael Joyce	Vice President Admin. and Finance
Jim Barrett	Director of Facilities
Paul O'Keefe	Chief Engineer

Jim Taddia Chief Mate Training ship
Brian Churchill Director of Purchasing
Wayne Raulino Bldg Maintenance Supervisor
Carol Broderick Facilities [dorms]
Victor Boutin Facilities
Karen Deckel Facilities Clerk

2.1 Long-Term Goals

Mass Maritime Academy has established programs regarding energy and water conservation, recycling, waste elimination, purchasing and regulatory compliance.
The Academy has established as long term goals the following two priorities.
1. Continuation of present policies with emphasis on education for students and staff to increase the volume of material recycled and purchasing program that features the use of recyclable and recycled products.
2. The use of alternative energy sources to reduce the amount of energy we must import and to maximize our energy saving dollars.
We make reference to the following excerpts from the F/Y2004 Annual Report to the MMA Board of Trustees by Paul O'Keefe our Chief Engineer to bolster our vision for the future.

Electricity
"For the past twelve months 5,308,680 kilowatt –hours of electricity were used at a cost of $551,380.
The training ship was along side for ten months using [30%] more electricity than historical consumption due primarily to the ship design that included electric heat in the berthing area. After completion of the Storer building expansion, our total campus load has in creased in the range of 5,000,000 to 5,500,000 kwhrs annually. The newly expanded and air-conditioned dining hall, increased student population, the new waste water plant , the training ship and other factors have added to the campus electrical load."
Renewable energy sources such as wind generators would save a minimum of $150,000 annually if the generators produce only 30% of the annual load.

MMA is an "Energy Star Building Partner" a program of the EPA. As a member of the program MMA has committed to a financially feasible energy upgrades to be implemented over a seven year period. The most recent construction projects have accomplished these upgrades.

Shooshanian Engineering,Inc has recently completed a Heating Plant Evaluation Study that in summary recommends decentralizing the campus heating system by adding natural gas satellite boilers in the buildings and [2] micro turbines cogeneration installations. As proposed. the recommended strategy would save 900,000 kwhrs annually with the micro turbine as well as thermal and energy cost savings.

Recently, MMA has entered into discussions with Mass Renewable Energy Trust and UMass Amherst to study and submit an RFP to construct a wind turbine on campus. The approximate cost would be about one million dollars. Our best estimates suggests we would reduce our electrical consumption from NStar by 25%

We are beginning to investigate the possible use of passive solar panels on the dormitories to provide hot water for those buildings

Additionally we have begun to explore fuel cell technology to further reduce our utility consumption.

3.1 Priority and Areas Goals

Electrical and water conservation wind turbine , plumbing water savers, room occupancy sensors

Product purchasing recycled and recyclable products

Recycling white paper collection

Safety and Compliance updates for chemical hygiene plans

3.2 Agency Action Steps

Sustainable Goal	Benefits	Specific Tasks	Responsible Staff	Timeline
Construct wind turbine	renewable energy resource	• Consolidate data for RFP • Work with Mass Renewable Energy Trust	• Paul O'Keefe Chief engineer • Jim Barrett Dir.of Fac. • R.Gurnon Exec V.P. •	• January 1, 2004 • Sept. 2005 completion
Product Purchasing	Recyclable products	Publish state wide contracts for in house use	Brian Churchill	On going
Recycling	Waste reduction Cost savings	White paper collection points offices- dorms	Facilities	Jan1,2005 & on going
Hygiene plan lab updates	Compliance, safety training	Draft plan- work with Triumvirate Environmental	Facilities and Faculty engineering Departments	Sept.28 2004 June 30,2005

4.1 Operational Sustainability

Decision points

A. New construction and renovations:

approved architect [DCAM Leed]

MMA renovation form has project description and sign off approval form for department heads. It includes environmental, energy considerations and cost estimates.

B. Facilities Management:

Conduct long and short term comparisons of costs and recycling operations

C. Purchasing Department

State and MHEC contracts for environmental products

Incorporate environmental language in bid specs and RFPs

Train staff and campus vendor employees on the environmental impact of their decisions when purchasing items.

D. Discuss Sustainability

Subject matter is to be considered at regularly scheduled staff meetings on all various levels [i.e. executive, managers and staff meetings.] Employee awareness and training to be scheduled along with email communication to the campus as a whole. Discuss with employees the environmental impact of their actions and operations.

4.2 Education and Training of Staff

Use the weekly department heads meeting to educate the staff on the sustainability effort.

Solicit staff comments and ideas on sustainability improvements.

Send appropriate staff members to appropriate training sessions and exhibits.

4.3 Management Systems

Presently Mass Maritime Academy does not have a formal EMS system. Preliminary discussions have begun with Triumvirate Environmental to assist the academy with this system. The initial planning meeting took place on September 28,2004 Many of our environmental policies exist in one form or another but they have not been collated to a formalized system.

Presently all EH&S items along with the sustainability effort are assigned under the Facilities department umbrella

Agency Tracking and Reporting Form

Coordinate with various vendors to receive appropriate information needed to complete tracking form.

Monitor “in house” collection and disposal of items for recycling.

Continuous Improvement

Discuss at weekly management and staff meetings any issues regarding environmental or sustainability efforts.

Encourage employee input and ideas on how the system is working or not working.

Review the effectiveness of the program at budget meetings.

Share at department heads meeting workable strategies and plans to keep the program viable.

At this time this program and process remains in the Facilities Department